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10/699,446

10/31/2003

Jitendra Balakrishnan

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04/18/2007

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EXAMINER

DEGHAN, QUEENIE S

ART UNIT

PAPER NUMBER

1731

| SHORTENED STATUTORY PERIOD OF RESPONSE | MAIL DATE | DELIVERY MODE |
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3 MONTHS

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/699,446

Applicant(s)

BALAKRISHNAN ET AL.

Examiner

Queenie Dehghan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 January 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 and 6-19 is/are pending in the application.
- 4a) Of the above claim(s) 15 and 16 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 6-14 and 17-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 17-19 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claim 17 recites a temperature of the surface of the glass rod does not exceed 940°C, which is broader than the disclosed limitation in the specification, which is 890°C to 960°C. Similarly this is true for claims 18 and 19.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein

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were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1, 6-8, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Itou (English translation of JP 09-278477) in view of Blankenship (3,932,162) and Fabian (2003/0140659).

4. Regarding claim 1, Itou discloses a method for making an optical fiber preform comprising providing a relative reciprocating motion between at least one soot producing burner and a consolidated glass rod, depositing a first layer on the rod and a first rate and direction, depositing a second layer on the first layer at a second rate slower than the first rate, in the first direction without sintering ([0006], [0007], [0008], [0009], Table 1 & 2), as evident by the need to sinter afterwards. However, Itou fails to disclose the thickness of the first layer formed. One of ordinary skill in the art would be able to sum up the desired number of burner passes in order to obtain a first layer with the desired thickness. Blankenship discloses an OVD method wherein the first layer deposited on the cylindrical mandrel has a thickness of 5mm and a second layer is subsequently deposited on top the first layer (col. 4 line 64 to col. 5 line 4) without sintering the first or second layer (col. 5 lines 12-15, 64-68). It would have been obvious to one ordinary skill in the art at the time the invention was made to form a first layer with a desired thickness of 5mm on the mandrel, as suggested by Blankenship, in

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the process of Itou because such a thickness in order to have a diameter measurement with reasonable precision, which would allow for tighter control of the core diameter and hence minimizing the scattering losses, as taught by Blankenship. Furthermore, Itou also fails to disclose an OH concentration at the glass rod interface. Fabian teaches a core glass rod interface with a cladding tube with a desired peak OH concentration within 100 μ m of the surface of the glass rod of less than 0.200ppm by weight ([0021]). It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the desired OH concentration teaches of Fabian in the process of Itou in order to minimize the optical attenuation due to OH content, as taught by Fabian.

5. Regarding claims 6 and 7, Itou also discloses a traverse rate in a second direction opposite the first direction is greater than the first traverse rate in the first direction and a deposition rate of zero during a traverse in the second direction ([0002]). Regarding claim 8, Itou disclose the use of two soot deposition burners (drawings 1 & 2).

6. Regarding claim 13, Itou fails to disclose a reciprocating motion comprising attaching a glass rod to movable support and traversing the support relative to the burner. Blankenship disclose a support means (20) for attaching to a mandrel, wherein the support means is traversed relative to the burner (col. 4 lines 60-62, fig. 1). It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the traversing support means of Blankenship in the process of Itou because Blankenship has demonstrated that it is a known means for the depositing soot on a mandrel in vapor deposition processes.

7. Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Itou (English translation of JP 09-278477) in view of Blankenship (3,932,162) and Fabian (2003/0140659), as applied to claim 1 above, in further view of Powers (4,726,827). Itou fails to disclose the traversing speed of the burners. Powers teaches a vapor deposition burner traversing at a rate at least about 10cm/s (col. 6 lines 40-44, col. 7 lines 58-63). It would have been obvious to one of ordinary skill in the art at the time the invention was made to optimize the traversing speeds of the deposition burners, as exemplified by Powers in the process of Itou, Blankenship, and Fabian in order to obtain the desired thickness of the soot layers.

8. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Itou (English translation of JP 09-278477) in view of Blankenship (3,932,162) and Fabian (2003/0140659), as applied to claim 8 above, in further view of Itoh et al. (2003/0101772). Itou fail to disclose the temperatures of the two burners. Itoh et al. teach a two burners system used where the temperature of a second burner is less than a temperature of a first burner ([0016] [0017], [0028]) used to preheat the surface of a starting material for deposition. It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the two different temperatures of the two burners of Itoh et al. in the process of Itou in order to prevent shearing and stripping of cladding layers while sintering.

9. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Itou (English translation of JP 09-278477) in view of Blankenship (3,932,162) and Fabian (2003/0140659), as applied to claim 1 above, in further view of Seto et al. (English

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Abstract of JP 63123829). Itou fails to disclose the deposition of the first layer of glass soot comprising a fuel free of hydrogen. Seto et al. teach depositing a soot layer to form a core part using a fuel gas containing no hydrogen to prevent the diffusion of OH groups to a core part of an optical fiber (Abstract). It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the hydrogen free fuel of the Seto et al. in the process of Itou, Blankenship, and Fabian in order to obtain a preform with low transmission loss, as taught by Seto et al.

10. Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Itou (English translation of JP 09-278477) in view of Blankenship (3,932,162) and Fabian (2003/0140659), as applied to claim 1 above, in further view of Ooishi et al. (2002,0073737). Itou fails to disclose the diameter of the glass rod. Ooishi et al. teach using a starting rod with a diameter of at least 32mm ([0045], [0061]). It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the starting rod diameter of Ooishi et al. in the process of Itou in order to obtain the desired outer diameter preform.

11. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Itou (English translation of JP 09-278477) in view of Blankenship (3,932,162) and Fabian (2003/0140659), as applied to claim 1 above, in further view of Fogliani et al. (WO 02/090276) or Schultz (3,826,560). Itou fails to disclose a reciprocating motion comprising attaching a glass rod to movable support and traversing the support relative to the burner. Fogliani et al. teach an embodiment where the core rod is traversed with respect to the burner (page 14 lines 19-22). In order to do so, it would have been

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obvious to one of ordinary skill in the art to expect a support that holds and moves the rod. Similarly, Schultz discloses traversing a starting rod while a burner deposits soot (col. 4 lines 35-41). It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the step of traversing the starting rod on a movable support of Fogliani et al. or Schultz in the process of Itou as it a known option in vapor deposition, when the burners are held in a fixed position.

12. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Itou (English translation of JP 09-278477) in view of Blankenship (3,932,162), Fabian (2003/0140659) and Fogliani et al. (WO 02/090276) or Schultz (3,826,560), as applied to claim 13 above, in further view of Springate (3,421,560). Blankenship, Fogliani et al. and Schultz teach the traversing of the rod, but fail to disclose a damping force for the movement of the support for the glass rod. However, Springate teach a movable frame that traverses in one direction and turns around (figure 2), wherein hydraulic cylinders with pistons are used to dampen the movement of the rolls, in the same manner as a shock absorber (col. 3 lines 9-16), to provide control movement of the rolls. It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the damping effects of the Springate in the process of Itou, Blankenship, Fabian, and Fogliani et al. or Schultz in order to control the movement of the movable support and compensate for wear on the mechanical parts, as taught by Springate.

13. Claims 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Itou (English translation of JP 09-278477) in view of Itoh et al. (2003/0101772). Itou discloses a method for making an optical fiber preform comprising providing a relative

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reciprocating motion between at least one soot producing burner and a consolidated glass rod, depositing a first layer on the rod and a first rate and direction, depositing a second layer on the first layer at a second rate slower than the first rate, in the first direction without sintering ([0006], [0007], [0008], [0009], Table 1 & 2), as evident by the need to sinter afterwards. However, Itou fails to disclose the temperature of the surface of the glass rod. Itoh et al. teach a method for making an optical fiber preform, where the rod has a surface temperature of 600°C, which does not exceed 640°C ([0028]). It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the starting temperature of the glass rod of Itoh et al. promote good adhesion between the soot particles and the rod, as taught by Itoh et al.

Response to Arguments

14. Applicant's arguments with respect to claims 1-14 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

15. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the


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shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Queenie Dehghan whose telephone number is (571)272-8209. The examiner can normally be reached on Monday through Friday 8:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


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